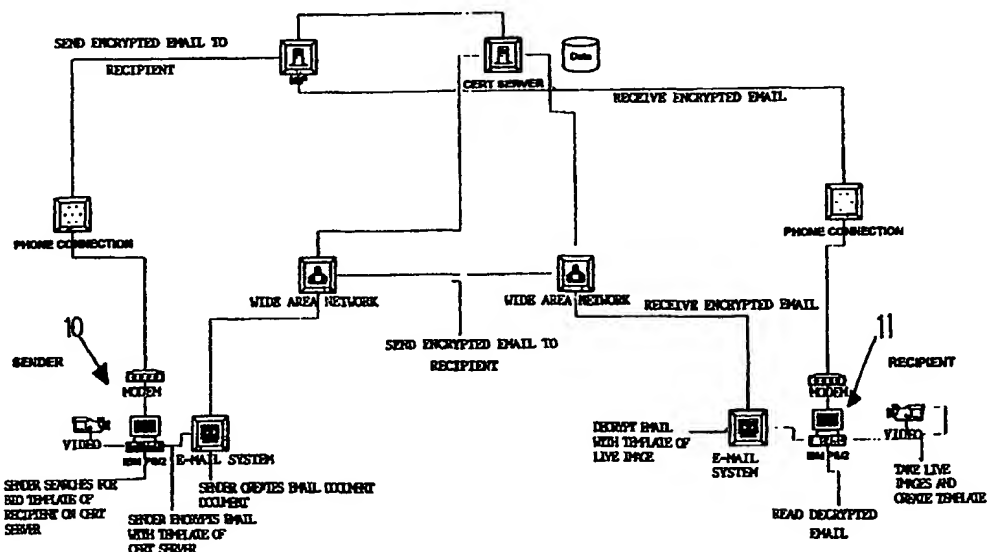




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(71) Applicant (for all designated States except US): IDENTALLINK LIMITED [GB/GB]; Glebe House, The Square, Bibury, Cirencester, Gloucestershire GL7 5NS (GB).			
(72) Inventor; and		<p>Published</p> <p><i>With international search report.</i></p> <p><i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	
(75) Inventor/Applicant (for US only): DRABBLE, Andrew [GB/GB]; 7b, Bacup Road, Rawtenstall, Lancashire BB4 7ND (GB).			
(74) Agent: BROWN, Michael, Stanley; Alpha & Omega, Chine Croft, East Hill, Ottery St. Mary, Devon EX11 1PJ (GB).			

(54) Title: METHOD OF AND MEANS FOR EFFECTING SECURE COMMUNICATION



**(57) Abstract**

A document is produced for transmission and is encoded by a computer (10) using a facial biometric template of the intended recipient. The document is transmitted to a computer (11) linked to a digital camera for taking a live image of the recipient. The computer (11) produces a live image-based facial biometric template of the recipient and, if it matches the transmitted template, the transmitted document will be decoded.

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## **METHOD OF AND MEANS FOR EFFECTING SECURE COMMUNICATION**

### **Field of the Invention**

This invention relates to a method of and means for effecting secure communication.

With the proliferation of the methods of communication and the increasing use of electronic mail (hereinafter referred to for convenience as "email"), there is a requirement for a method of and means for ensuring that secure information can only be read by the intended recipient.

It is an object of the present invention to meet that requirement.

### **Summary of the Invention**

According to a first aspect of the present invention there is provided a method of effecting secure communication, said method including:-

- a) producing a document for transmission,

- b) encoding the document using a biometric template of the intended recipient,
- c) transmitting the document,
- d) decoding the document using a biometric template taken from a live image of the recipient, and
- e) displaying the decoded document.

The biometric template of the intended recipient is preferably a facial biometric template but, if higher levels of security are required, a fingerprint template of the intended recipient may also be included.

According to a second aspect of the present invention there is provided means for effecting secure communication, said means comprising:-

- a) means for encoding a document using a biometric template of the intended recipient,
- b) means for decoding the document using a biometric template taken from a live image of the recipient, and
- c) means for displaying the decoded document.

As mentioned above, the biometric template of the intended recipient is preferably a facial biometric template, but a fingerprint template of the intended recipient may also be included.

The means for encoding the document will preferably be a computer programmed to incorporate the relevant data in an

encrypted data file, such as a two-dimensional barcode, with the biometric template acting as a 1528 encryption key.

The means for decoding the document will preferably include a suitably programmed computer linked to a camera so that the computer can capture a live facial image of the recipient and, if it matches the encoded template, allow the recipient to read the document.

For the higher level of security, the receiving computer will also include a connection to a fingerprint reader such that the receiving computer can compare the encoded facial biometric template and the fingerprint template with the live images which it is receiving and display or allow access to the document only when a complete match is obtained.

### **Brief Description of the Drawing**

The single figure of the accompanying drawing is a flow diagram showing the encryption, transmission and reception of secure documents using facial biometric templates.

### **Description of the Preferred Embodiment**

A sender wishing to transmit a secure email has access to a facial biometric template of the intended recipient, either by access from a certified server or by received email. The facial biometric template can be produced using software supplied by the present

applicants. The sender produces the document which he or she wishes to transmit and, by means of a computer 10, encrypts that document using the facial biometric template of the recipient, which acts as a 1528 encryption key and is transported in an encrypted data file, for example, a two-dimensional barcode.

Having encrypted the document, it is transmitted to the intended recipient by email, FTP, or using any other electronic/digital carrier. If transmission is effected by email, the communication will be from the sender's computer 10 to the recipient's computer 11.

The receiver will save the incoming document on his or her hard disc or any other storage media, using a digital camera linked to the computer 11, which will take his or her live image. The software installed in the computer 11 will then create a facial biometric template of the recipient using the live image of the recipient taken with the digital camera. The software will then open the received document and attempt to decode it using this live image-based facial biometric template. If this live image-based facial biometric template matches the encrypted facial biometric template, the transmitted document will then be decoded, so that it can either be displayed on the screen of the computer 11 or printed out. If, of course, the live image-based facial biometric template does not match the encrypted facial biometric template, the transmitted document will not be decoded and will thus not be made available to the recipient.

The arrangement will thus be such that the intended recipient must be in front of the camera linked to the computer 11 while the comparison with the encrypted facial biometric template is carried out to enable decoding of the document to be effected.

If the communication is transmitted by floppy disc or CD, the floppy disc or CD will be inserted into the computer 11 and the procedure outlined above then carried out by the recipient.

For situations in which extremely high security is required, i.e. beyond that achieved by the use of a facial biometric template, the encrypted document is produced using not only a facial biometric template but also a fingerprint template such that decoding of the transmitted document will only be effected when the fingerprint of the intended recipient, as well as the facial image of the intended recipient, is made available to the computer 11. The computer 11 will accordingly be provided with a fingerprint reader.

The system will normally be such that it can run on computers using any standard operating system such as "Linux", "Win95", "Win98", "Win NT 4.0", "Win2000" or "UNIX" with a modem link. Software supplied by the applicants under the trade mark "FaceMail" will be installed on the computers of both the sender and the recipient.

It will be appreciated that the encrypted email can be received at any computer and decoded provided that the dedicated software is installed and that the intended recipient is physically present. If

the intended recipient is not present, it will not be possible to decode the encrypted email.

**Claims:-**

1. A method of effecting secure communication, said method including:-

- a) producing a document for transmission,
- b) encoding the document using a biometric template of the intended recipient,
- c) transmitting the document,
- d) decoding the document using a biometric template taken from a live image of the recipient, and
- e) displaying the decoded document.

2. A method as claimed in Claim 1, in which the biometric template of the intended recipient is a facial biometric template.

3. A method as claimed in Claim 2, in which the biometric template of the intended recipient also includes a fingerprint template of the intended recipient.

4. Means for effecting secure communication, said means comprising:-

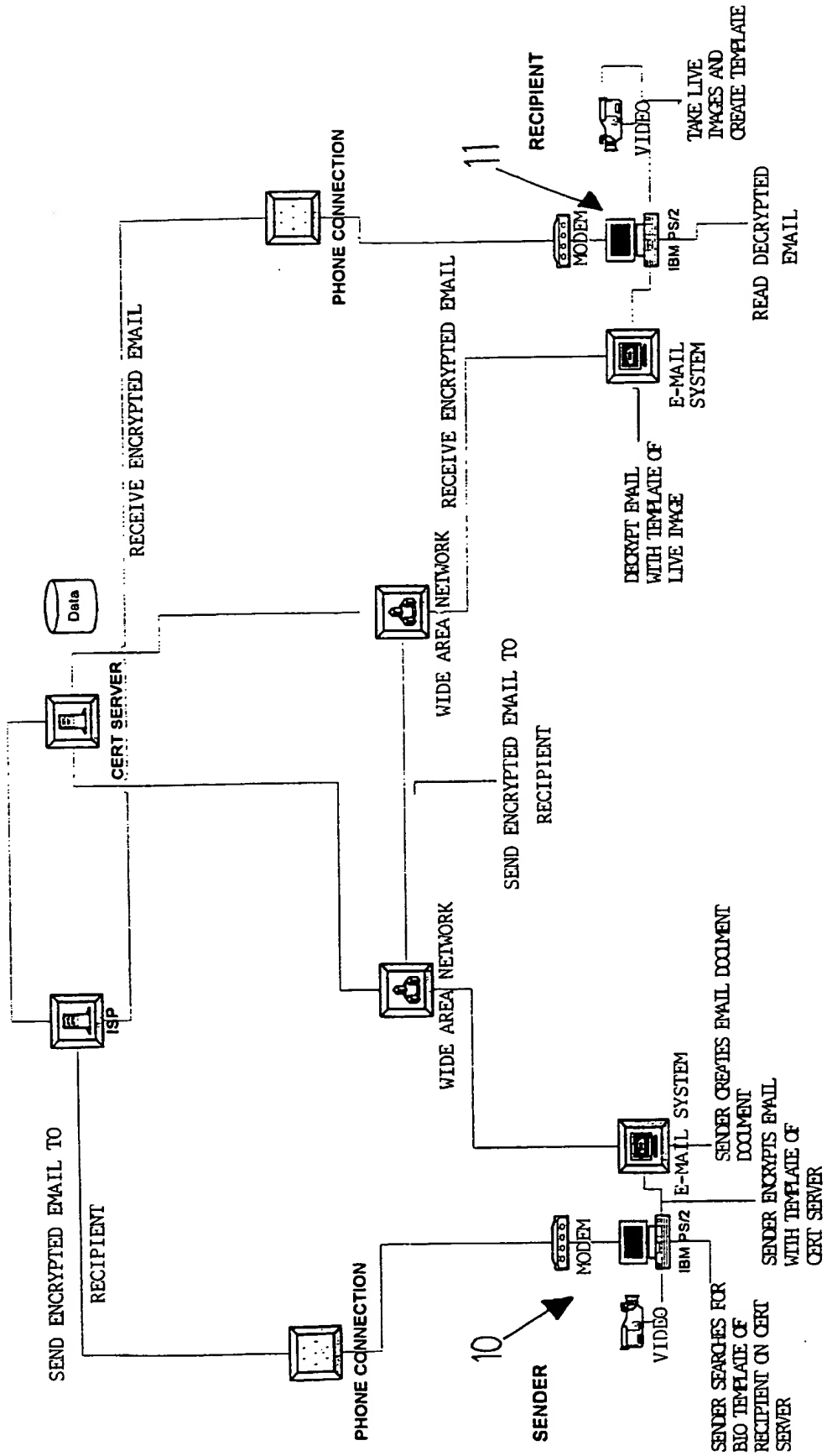
- a) means for encoding a document using a biometric template of the intended recipient,
- b) means for decoding the document using a biometric template taken from a live image of the recipient, and
- c) means for displaying the decoded document.

5. Means for effecting secure communication as claimed in Claim 4, in which the biometric template of the intended recipient is a facial biometric template.

6. Means for effecting secure communication as claimed in Claim 5, in which the biometric template of the intended recipient also includes a fingerprint template.

7. Means for effecting secure communication as claimed in Claim 4, in which the means for encoding the document is a computer programmed to encrypt the relevant data in an encrypted data file.

8. Means for effecting secure communication as claimed in Claim 5, in which the means for decoding the document includes a suitably programmed computer linked to a camera so that the camera can capture a live facial image of the recipient and, if it matches the encoded template, allow the recipient to read the document.



# INTERNATIONAL SEARCH REPORT

Int. Jona! Application No

PCT/GB 00/01339

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04L9/08

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 52317 A (VERIDICOM INC) 19 November 1998 (1998-11-19) page 2, line 16 - line 31 page 3, line 17 - line 22 page 4, line 26 -page 5, line 5 page 6, line 8 - line 10 page 9, line 4 - line 14 page 10, line 9 - line 7 page 15, line 19 - line 23	1-8
A	DE 42 43 908 A (GAO GES AUTOMATION ORG) 30 June 1994 (1994-06-30) column 3, line 38 -column 4, line 17 -/-	1,3,4,6



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	<p>WO 99 33219 A (KONINKL PHILIPS ELECTRONICS            NV ;PHILIPS AB (SE))            1 July 1999 (1999-07-01)            page 3, line 3 - line 28            page 6, line 33 -page 7, line 34</p>	1-8

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/01339

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